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INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Land Application of Septage

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1. **What is the land application of septage?**
   Land application of septage is the spraying/spreading of treated septage on agricultural fields as a soil amendment/fertilizer at controlled rates.

2. **How to determine area covered?**
   The area covered is only the portion of the site/field where each load of septage was applied. To determine the area covered first determine the length of travel. Measure the length of the field just where the septage was applied. Multiply the length of the area covered by the width of the area of coverage.

   Example: the truck travels 3,500 feet forward to land apply the contents of the tank. The septage is applied at a width of 6 feet. Calculate 3,500 ft. X 6 ft. = 21,000 ft^2. To determine acres, take 21,000 ft^2 divided by 43,560 ft^2 in an acre = 0.482 acres.

3. **How to calculate application rates?**
   Application rates are a calculated value. It is determined by the amount of septage land applied divided by the area covered. Determine the application rate for each load land applied.

   Example: a tank holds 1,500 gallons of septage. Calculate: 1,500 gallons divided by 0.482 acres (from example 2, above). 1,500 / 0.482 = 3,112.03 gallons per acre. The application rate for this one load of septage is 3,112 gallons per acre.

4. **Maximum Application Rates**
   Domestic septage or mixed loads must be applied so that the following annual application rates are not exceeded:

Projected Crop	Application Rate	Crop Nitrogen Requirements
Corn	76,000 gallons per acre	200 pounds
Soybeans, Wheat, Hay	38,000 gallons per acre	100 pounds
Grass, Pasture, Set-aside, Idle	19,000 gallons per acre	50 pounds

5. **What is overlapping?**
   Overlapping is when septage is land applied over the same area of the field two or more times. When septage land applications overlap previously used areas, the application rates are added together for a total rate of septage application.

Example: On Monday 1,500 gallons of septage is applied to 0.482 acres of a 5 acre field. On Tuesday 1,000 gallons of septage is applied to the same 0.482 acres. The application rate is 1,500 + 1,000 / 0.482 = 5,186.7 gallons per acre.

6. **What is the projected crop?**
   The projected crop is what will be grown on the field during the next growing season. A typical growing season for a crop includes planting in spring and harvesting in the fall. Typical crops are corn, soybeans, hay and wheat.

   Septage cannot be land applied to fertilize crops for direct human consumption.

7. **How to determine the projected crop.**
   When septage is land applied and a crop will be planted in the same year, the application rates are based on the crop to be planted. Example: Land applying septage in April 2017 and a soybean crop will be planted in May 2017.

   When septage is land applied and no crop will be planted in the same year, the projected crop should be set aside. Example: Land applying septage in July 2016 and a corn crop will not be planted until May 2017.

8. **Pathogen Reduction**
   Septage must be treated by adding enough lime to each load of septage prior to land application to raise the pH of the septage to 12 and maintain a pH of at least 12 for 30 minutes.

   If the septage contains both domestic septage and grease trap waste the pH of the load must be raised to 12 and maintained at 12 for 2 hours.

9. **How to document pathogen reduction?**
   Lime must be added to each load in sufficient quantities to raise the pH of the septage to 12. When the pH reaches 12 the operator must document the time and the pH reading. After the required waiting period (30 minutes or 2 hours) the operator must document the time and pH reading again. If the pH has remained above 12 for the required waiting period, the septage has met the pathogen reduction requirements and can be land applied.

   If the load of septage did not maintain a pH of at least 12 for the required time period, the load cannot be land applied. The operator must either dispose of it at a waste water treatment plant or must start the treatment process over again.

   The temperature of the septage must be monitored at the time the pH is monitored. The temperature should be 25 °C when the pH is at 12. If the temperature is above 25 °C, the pH must be adjusted up 0.03 units for each degree above 25 °C. For temperatures below 25 °C, the pH must be adjusted down 0.03 units for each degree below 25 °C.